

# Developing a Product Validation and Merged JPSS/GOES-R System Using Advanced Collocation Methods

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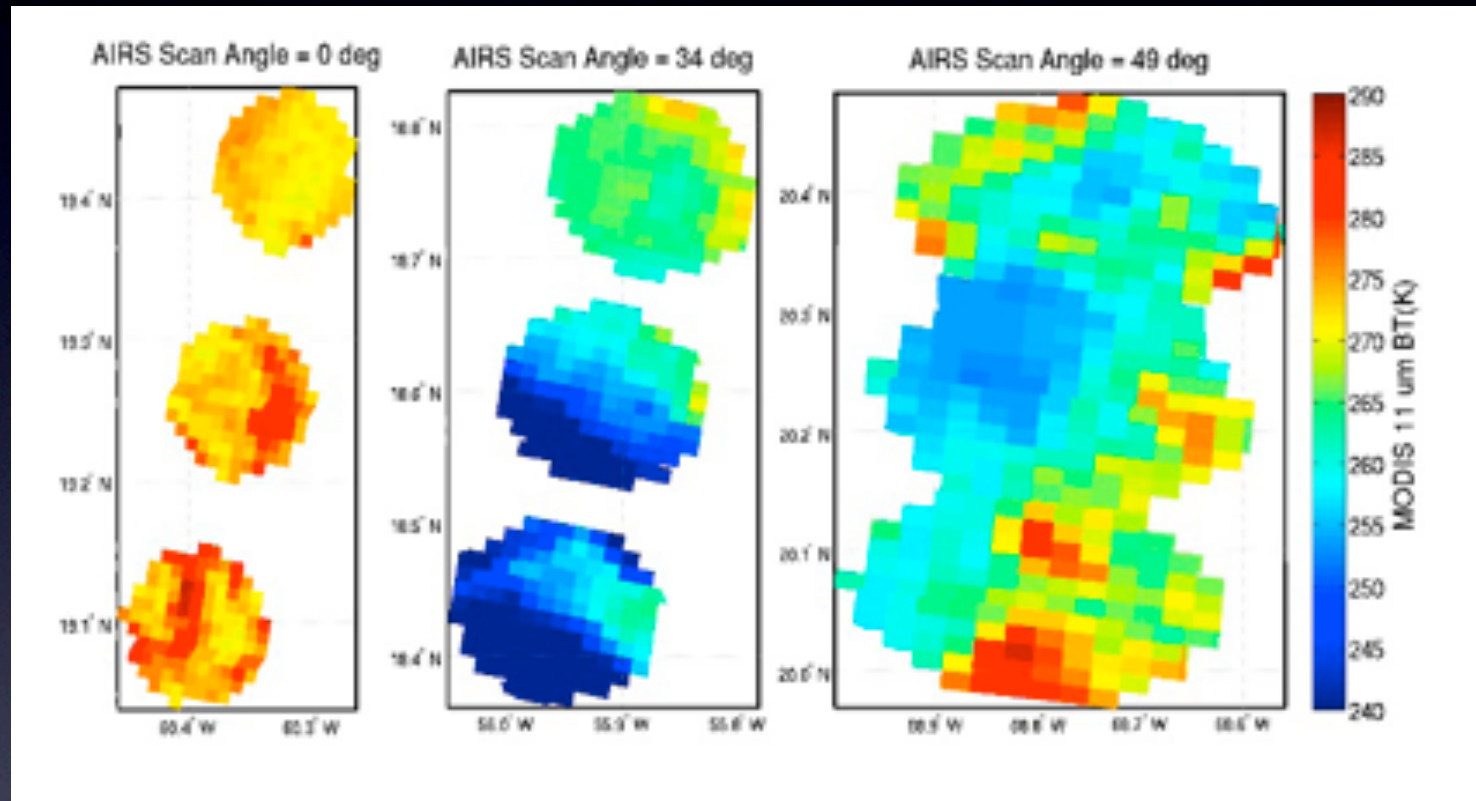


# Background

- The goals of the project are to develop a validation system built from over 30 years of collocation expertise developed at UW SSEC
- The GOES-R AWG collocation project has formalized these tools into a collocation library providing computationally very efficient methods to collocate geostationary and polar observations together
- Using these tools a validation system is being developed designed to support near realtime monitoring and long term validation of the GOES-R products
- The JPSS project is now leveraging this work to support JPSS validation



# Physical Collocation



The physical collocation projects the instrument master FOV on the earth surface and then identifies each follower pixel within the master footprint. For SEVIRI we the software can collocate a VIIRS granule in approximately ???

Follower \ Master	AVHRR	CALIOP	CLOUDSAT	GOES	MODIS	POLDER	SEVIRI	VIIRS
AIRS		X	X	X	X		X	
AMSR-E					X			
CLOUDSAT		X						X
CrIS		X					X	X
GOES		X			X			
HIRS	X	X						
IASI					X		X	
MODIS		X				X		X
SEVIRI		X			X			
VIIRS		X						

The current instruments supported by the GOES-R collocation software



# The GOES-R Product Evaluation System

- Using the collocation infrastructure we are implementing a centralized validation system for the GOES-R validation efforts
- The system will provide near realtime monitoring and long term statistics of the GOES-R products
- The system will support the development of merged Polar and GEO (JPSS/GOES-R) products and retrievals
- The system will provide GEO/LEO inter-calibration in near realtime



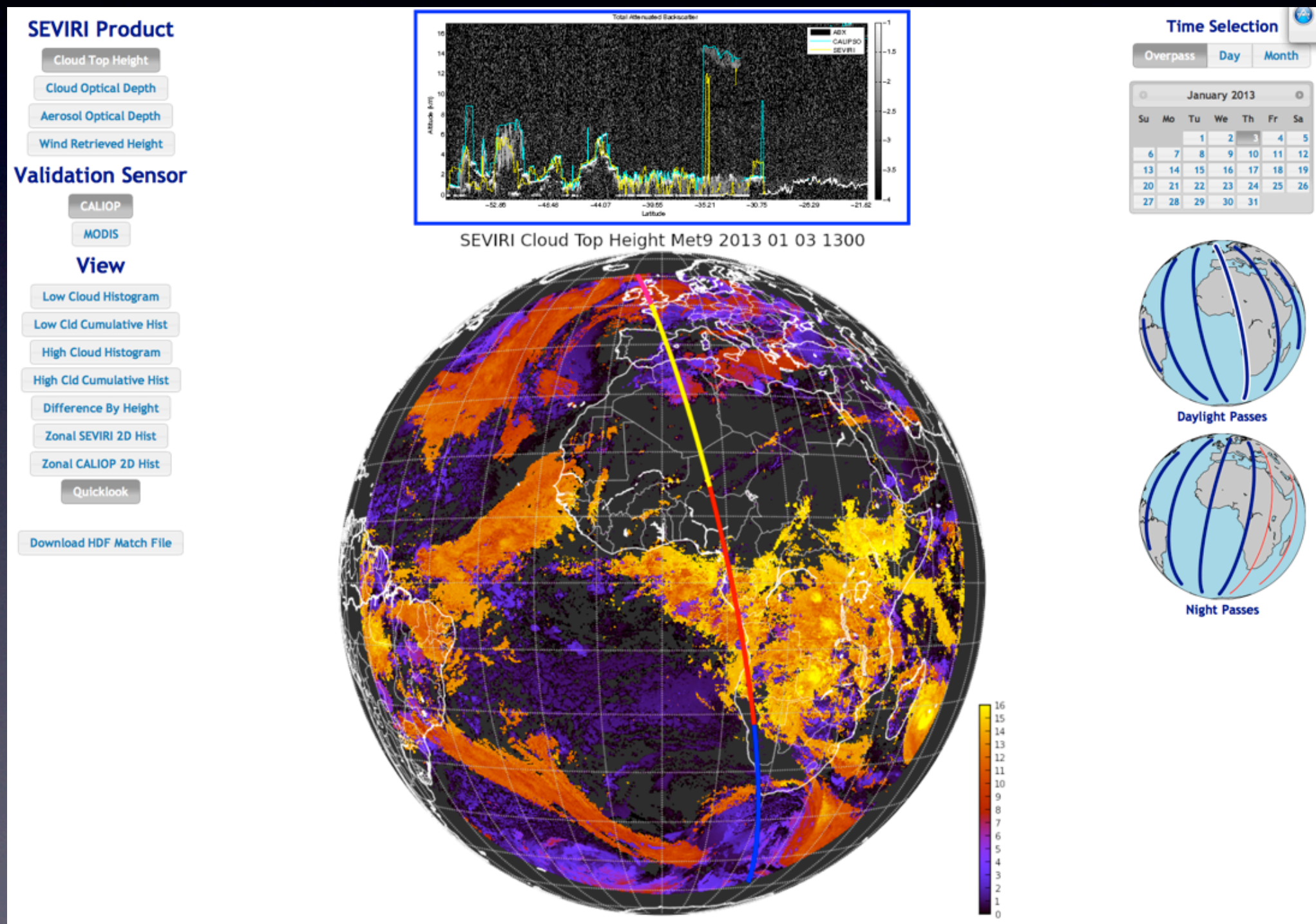
# Processing System

- Leverages UW Atmospheric PEATE processing system
- Supports forward stream and archival processing
- Geographical and multi-sensor processing via integrated orbital prediction
- An extensible catalog of scientific algorithms; algorithms specify sensor and ancillary input requirements; Flo chains algorithms together as needed to reach output products
- Provides the capability to processes the collocation and algorithms that require multiple instruments platforms (ie GOES-R and CrIS)



# Prototype GOES-R Validation Web Interface

<http://kepler.ssec.wisc.edu> (safari or firefox)



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## SEVIRI Product

Cloud Top Height

Cloud Optical Depth

Aerosol Optical Depth

Wind Retrieved Height

## Validation Sensor

CALIOP

MODIS

## View

Low Cloud Histogram

Low Cld Cumulative Hist

High Cloud Histogram

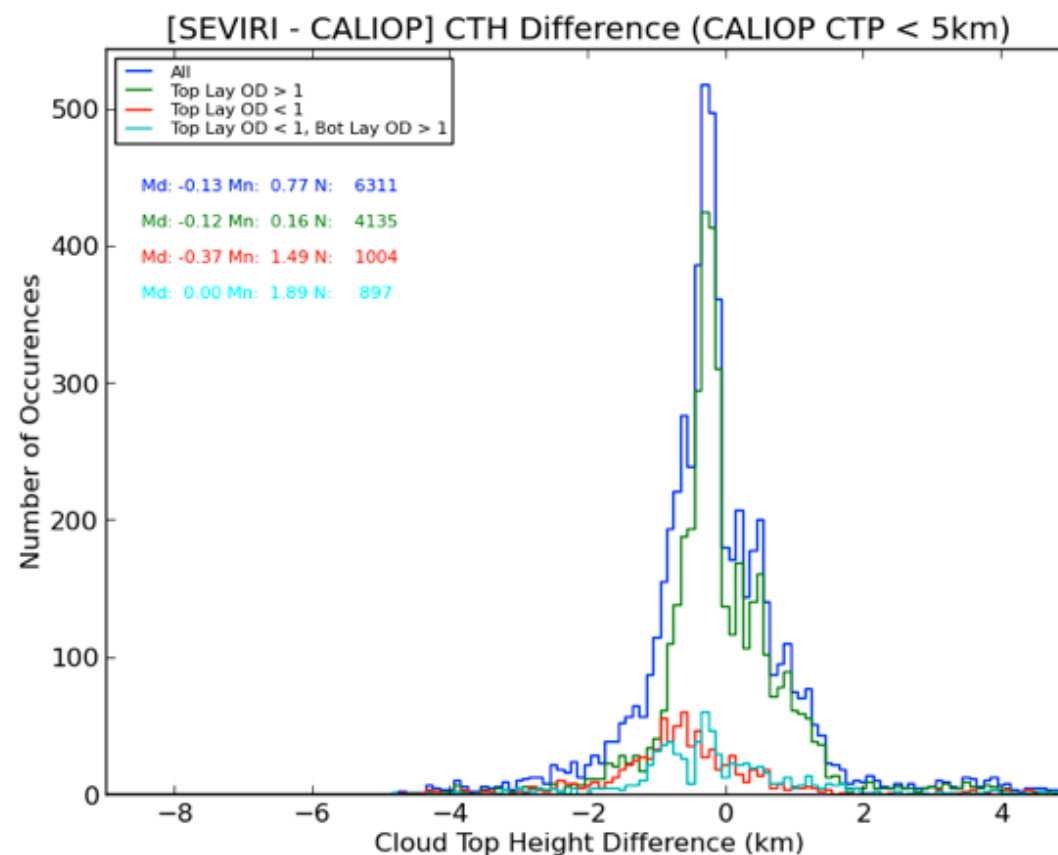
High Cld Cumulative Hist

Difference By Height

Zonal SEVIRI 2D Hist

Zonal CALIOP 2D Hist

Quicklook



## Time Selection

Overpass

Day

Month

January 2013

Su	Mo	Tu	We	Th	Fr	Sa
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		



Daylight Passes



Night Passes



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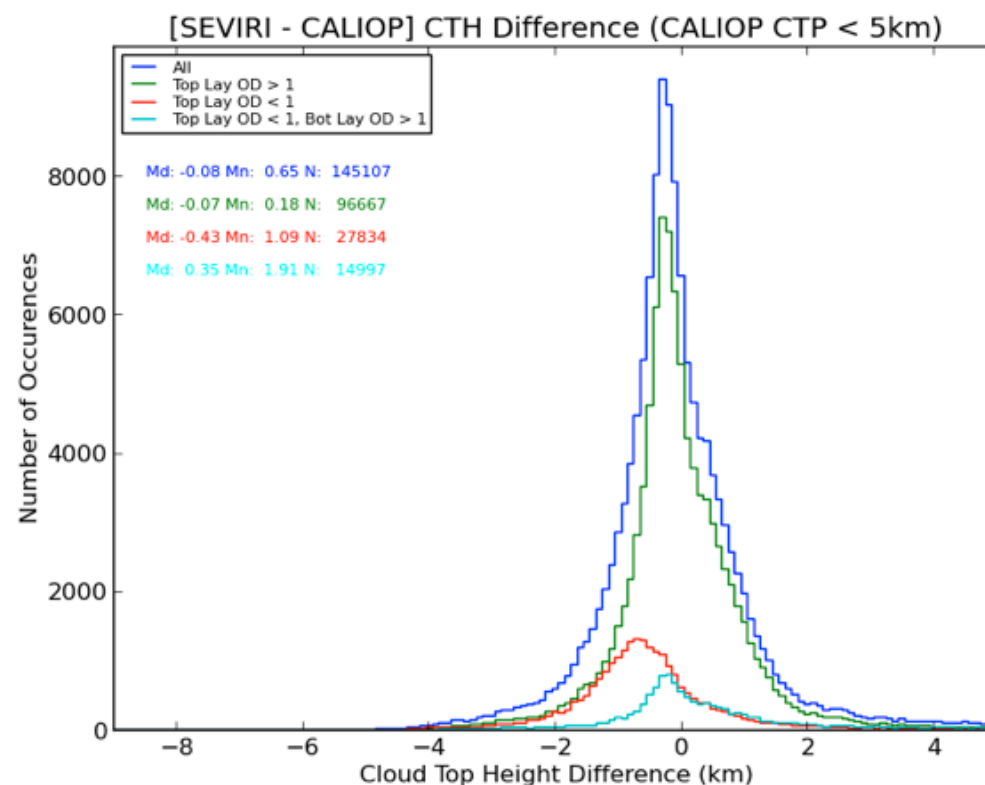
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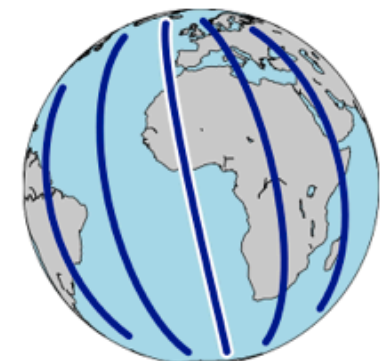


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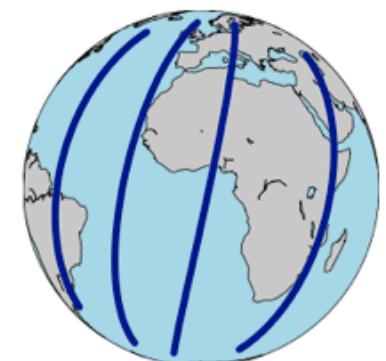
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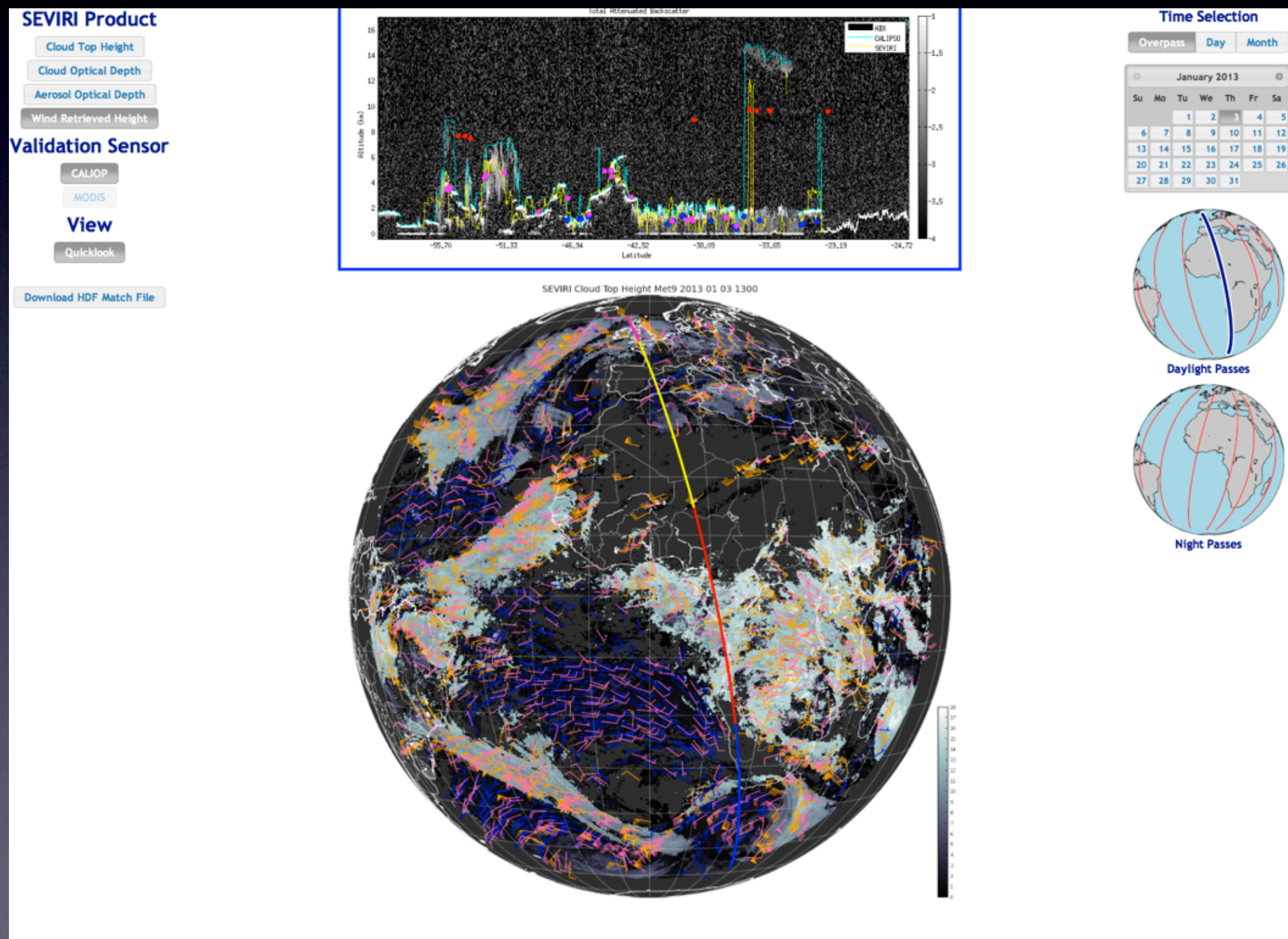


Night Passes



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# Summary

- An integrated validation system has been developed as part of the GOES-R collocation project.
- This system is built from the collocation library developed as part of the AWG collocation project and leverages the JPSS processing system development as part of the Atmospheric PEATE.
- A prototype web interface is being developed which will provide analysis tools to support the AWG validation efforts. This tool will integrate both the GOES-R and JPSS products.
- Given continued funding from the GOES-R project we plan continue the development of this validation system for the GOES-R AWG products with the goal of providing direct comparison in near real time between GOES-R, JPSS, and the MODIS A-train observations once GOES-R is in orbit.